

AMENDMENT TO THE CLAIMS

This listing of claims will replace all prior versions of claims in the application.

Listing of Claims:

1. (Currently Amended) A first agent configured for coupling to a bus in which said first agent is one of to which a plurality of agents that are capable of being coupled to said bus, ~~said first agent comprising an arbiter~~ plurality of agents having corresponding arbiters coupled to receive ~~a plurality of request signals and said arbiter is a~~ operate as distributed arbiters among the plurality of included with said first agents, ~~each of said plurality of request signals corresponding to a respective agent of said plurality of agents in which each corresponding respective agent also has a distributed arbiter included therewith, wherein each of said plurality of request signals is indicative of whether or not the arbiter of said a respective agent is arbitrating for said bus, and wherein said an~~ arbiter of said first agent is to maintain order of its priority in relation to other agents arbitrating for said bus and is coupled to receive an agent identifier transmitted on said bus as part of a transaction, said agent identifier identifying a second agent using said bus, and wherein said arbiter of said first agent is configured to determine if said first agent wins an arbitration for said bus responsive to said plurality of request signals and said agent identifier without determining which other agent wins arbitration, if said first agent does not win arbitration.

2. (Currently Amended) The first agent as recited in claim 1, wherein said arbiter of said first agent comprises one or more registers configured to store a state indicative of: (i) which of said plurality of agents are higher priority than said first agent for said arbitration; and (ii) which of said plurality of agents are lower priority than said first agent for said arbitration.

3. (Currently Amended) The first agent as recited in claim 2 wherein said arbiter of said first agent further includes a circuit configured to generate a grant signal to said first agent responsive to said plurality of request signals and said state, said grant signal

indicative of whether or not said first agent wins said arbitration.

4. (Currently Amended) The first agent as recited in claim 3 wherein said circuit is further responsive to ~~said~~ an agent identifier used to identify a winning agent of said arbitration ~~to generate said grant signal~~.

5. (Currently Amended) The first agent as recited in claim 2 wherein said arbiter of said first agent further comprises a circuit configured to update said state responsive to ~~said~~ an agent identifier used to identify a winning agent of said arbitration, wherein said circuit is configured to update said state to indicate a lower priority for said winning agent after said winning agent wins said arbitration ~~that said second agent identified by said agent identifier is lower priority than said first agent if said second agent is different than said first agent~~.

6. (Currently Amended) The first agent as recited in claim ~~5~~ 4 wherein said circuit is further configured to update said state to indicate that ~~each of said plurality of other~~ agents is ~~are~~ higher in priority than said first agent responsive to said first agent winning said arbitration.

7. (Currently Amended) The first agent as recited in claim 1 wherein said bus is a split transaction bus, and wherein said arbiter for said first agent is configured to arbitrate for an address portion of said bus, and wherein ~~said~~ an agent identifier is included as a portion of a transaction ~~identifier for said transaction~~.

8. (Currently Amended) The first agent as recited in claim 1 wherein said bus is a split transaction bus, and wherein said arbiter for said first agent is configured to arbitrate for a data portion of said bus, ~~and wherein said agent identifier is separate from a transaction identifier for said transaction~~.

9. (Currently Amended) A system comprising:

a bus, in which said bus ~~including~~ to transfer a plurality of request signals and an

agent identifier transmitted with a transaction on said bus; and

a plurality of agents coupled to said bus in which each agent has a distributed arbiter included therewith, ~~each agent of said plurality of agents coupled to~~ generate a ~~respective one of said plurality of request signals for providing an indication of whether or not said agent is arbitrating for said bus; and wherein a first agent using said bus is configured to provide said agent~~ a respective agent identifier indicative of said first that ~~respective agent, and wherein the distributed arbiter of each respective agent to maintain order of its priority in relation to other agents arbitrating for said bus and to determine if it wins an arbitration for said bus, but without determining which other agent wins arbitration of said plurality of agents is coupled to receive each of said plurality of request signals corresponding to other ones of said plurality of agents and to receive said agent identifier, and wherein each said arbiter is configured to determine if said respective agent wins an arbitration for said bus responsive to said plurality of request signals and said agent identifier.~~

10. (Currently Amended) The system as recited in claim 9 wherein each said arbiter comprises one or more registers configured to store a state indicative of: (i) which of said plurality of agents are higher priority than said respective agent for said arbitration; and (ii) which of said plurality of agents are lower priority than said respective agent for said arbitration.

11. (Currently Amended) The system as recited in claim 10 wherein each said arbiter further includes a circuit configured to generate a grant signal to said respective agent responsive to said plurality of request signals and said state, said grant signal indicative of whether or not said respective agent wins said arbitration.

12. (Currently Amended) The system as recited in claim 11 wherein said circuit for each said arbiter is further responsive to said a respective agent identifier to generate said grant signal.

13. (Currently Amended) The system as recited in claim 10 wherein each said arbiter

further comprises a circuit configured to update said state responsive to said an agent identifier, wherein said respective circuit is configured to update said state to indicate a lower priority after winning said arbitration ~~that said first agent is lower priority than said respective agent if said first agent is different from said respective agent.~~

14. (Currently Amended) The system as recited in claim ~~13~~ 10 wherein each said arbiter further comprises a circuit ~~is further~~ configured to update said its respective state to indicate that ~~each of said plurality of other~~ agents is are higher in priority than said respective agent responsive to said respective agent winning said arbitration.

15. (Currently Amended) The system as recited in claim 9 wherein said bus is a split transaction bus, and wherein each said arbiter is configured to arbitrate for an address portion of said bus, and wherein said agent identifier is included as a portion of an address ~~transaction identifier for said transaction.~~

16. (Currently Amended) The system as recited in claim 9 wherein said bus is a split transaction bus, and wherein each said arbiter is configured to arbitrate for a data portion of said bus, ~~and wherein said agent identifier is separate from a transaction identifier for said transaction.~~

17. (Currently Amended) A method comprising:

maintaining in a distributed arbiter for a first agent, a state indicative of: (i) which of a plurality of agents coupled to a bus are higher priority than said first agent for an arbitration, and (ii) which of said plurality of agents are lower priority than said first agent for said arbitration;

arbitrating for the bus by sending a request signal;

receiving request signals of other agents arbitrating for the bus ~~an agent identifier indicative of a second agent using said bus, said agent identifier transmitted on said bus as part of a transaction by a distributed arbiter for said second agent;~~ and

determining the state of the first agent in relation to priorities of other agents arbitrating for the bus to determine if the first agent wins said arbitration, but without

determining which other agent wins arbitration, if said first agent does not win arbitration
updating said state responsive to said agent identifier.

18. (Currently Amended) The method as recited in claim 17 ~~wherein said updating~~
~~comprises further comprising updating said state to indicate that said second agent is~~
~~lower priority than said first agent if said second agent is different from said first agent~~
after the arbitration.

19. (Canceled)

20. (Currently Amended) The method as recited in claim ~~19~~ 17 wherein said
determining ~~is further~~ includes being responsive to ~~said~~ agent identifiers included with
the request signals.

21. (Currently Amended) The method as recited in claim ~~19~~ 17 further comprising
updating said state for said first agent to indicate that each of said plurality of agents
requesting arbitration is higher priority than said first agent if said first agent wins said
arbitration.

22. (Currently Amended) A distributed arbiter comprising:

one or more registers of the distributed arbiter of a first agent configured to store a
state indicative of: (i) which of a plurality of agents coupled to a bus are higher priority
than a said first agent for an arbitration, and (ii) which of said plurality of agents are
lower priority than said first agent for said arbitration; said first agent and plurality of
agents having respective distributed arbiters to determine priority of arbitration requests
for said bus and said arbiter for said first agent to compare arbitration requests from
other agents to said state stored in said one or more registers to determine if said first
agent wins said arbitration, but without determining which other agent wins arbitration,
if said first agent does not win arbitration; and

a first circuit coupled to receive an agent identifier indicative of a second agent
using winning arbitration of said bus if said first agent does not win arbitration, said agent

identifier transmitted on said bus as part of a transaction from a distributed arbiter of said second agent, wherein said first circuit is configured to update said state responsive to said agent identifier.

23. (Currently Amended) The arbiter as recited in claim 22 wherein said first circuit in said first agent is configured to update said state to indicate that said second agent is lower priority than said first agent if said second agent ~~is different from said first agent~~ wins arbitration.

24. (Currently Amended) The arbiter as recited in claim 22 further comprising a second circuit coupled to said one or more registers and coupled to receive ~~a plurality of request signals~~ said arbitration requests, ~~each of said plurality of request signals corresponding to a respective agent of said plurality of agents, each having its distributed arbiter included therewith, and indicative of whether or not said respective agent is arbitrating for said bus, and wherein said second circuit is configured to determine if said first agent wins said arbitration responsive to said state and said plurality of~~ arbitration requests signals.

25. (Currently Amended) The arbiter as recited in claim 24 wherein said first circuit is configured to update said state to indicate that ~~each of said plurality of other agents is~~ are higher priority than said first agent responsive to said first agent winning said arbitration.

26. (Currently Amended) The arbiter as recited in claim 24 wherein said second circuit is configured to determine if said first agent wins said arbitration ~~further responsive to said~~ using the agent identifiers to identify agents that generate arbitration requests.

27. (Currently Amended) The arbiter as recited in claim 22 wherein said bus is a split transaction bus, and wherein said arbiter is configured to arbitrate ~~for~~ to place an address ~~portion of~~ on said bus.

28. (Currently Amended) The arbiter as recited in claim 22 wherein said bus is a split transaction bus, and wherein said arbiter is configured to arbitrate ~~for a~~ to place data

~~portion of~~ on said bus.

29. (Currently Amended) The arbiter as recited in claim 27 wherein said bus is a split transaction bus, and wherein said arbiter is configured to arbitrate ~~for a~~ to place data ~~portion of~~ on said bus.

30. (Canceled)

31. (Canceled)

32. (Currently Amended) A carrier medium comprising a database which is operated upon by a program executable on a computer system, the program operating on the database to perform a portion of a process to fabricate an integrated circuit including circuitry described by the database, the circuitry described in the database including a first agent configured for coupling to a bus in which said first agent is one of to which a plurality of agents that are capable of being coupled to said bus, said ~~first agent comprising a distributed arbiter~~ plurality of agents having corresponding arbiters coupled to receive ~~a plurality of request signals and operate as distributed arbiters among the~~ plurality of agents, ~~each of said plurality of request signals corresponding to a respective agent of said plurality of agents, each having its distributed arbiter included therewith, wherein each of said plurality of request signals is indicative of whether or not said the~~ arbiter of a respective agent is arbitrating for said bus, and wherein said an arbiter of said first agent to maintain order of its priority in relation to other agents arbitrating for said bus and is coupled to receive an agent identifier transmitted on said bus as part of a ~~transaction, said agent identifier identifying a second agent using said bus, and wherein said arbiter is configured to determine if said first agent wins an arbitration for said bus responsive to said plurality of request signals and said agent identifier without determining which other agent wins arbitration, if said first agent does not win arbitration.~~

33. (Currently Amended) The carrier medium as recited in claim 32, wherein said

arbiter of said first agent comprises one or more registers configured to store a state indicative of: (i) which of said plurality of agents are higher priority than said first agent for said arbitration; and (ii) which of said plurality of agents are lower priority than said first agent for said arbitration.

34. (Currently Amended) The carrier medium as recited in claim 33 wherein said arbiter of said first agent further includes a circuit configured to generate a grant signal to said first agent responsive to said plurality of request signals and said state, said grant signal indicative of whether or not said first agent wins said arbitration.

35. (Currently Amended) The carrier medium as recited in claim 34 wherein said circuit is further responsive to said an agent identifier used to identify a winning agent of said arbitration ~~to generate said grant signal~~.

36. (Currently Amended) The carrier medium as recited in claim 33 wherein said arbiter of said first agent further comprises a circuit configured to update said state responsive to said agent identifier, wherein said circuit is configured to update said state to indicate a lower priority after winning said arbitration ~~that said second agent identified by said agent identifier is lower priority than said first agent if said second agent is different than said first agent~~.

37. (Currently Amended) The carrier medium as recited in claim 36 wherein said circuit is further configured to update said state to indicate that ~~each of said plurality of other~~ agents is are higher in priority than said first agent responsive to said first agent winning said arbitration.

38. (Currently Amended) The carrier medium as recited in claim 32 wherein said bus is a split transaction bus, and wherein said arbiter for said first agent is configured to arbitrate for an address portion of said bus, and wherein said an agent identifier is included as a portion of a transaction identifier for said transaction.

39. (Currently Amended) The carrier medium as recited in claim 32 wherein said bus is a split transaction bus, and wherein said arbiter for said first agent is configured to arbitrate for a data portion of said bus, ~~and wherein said agent identifier is separate from a transaction identifier for said transaction.~~

40. (Currently Amended) A carrier medium comprising a database which is operated upon by a program executable on a computer system, the program operating on the database to perform a portion of a process to fabricate an integrated circuit including circuitry described by the database, the circuitry described in the database including ~~an~~ a distributed arbiter comprising:

one or more registers of the distributed arbiter of a first agent configured to store a state indicative of: (i) which of a plurality of agents coupled to a bus are higher priority than a said first agent for an arbitration, and (ii) which of said plurality of agents are lower priority than said first agent for said arbitration; said first agent and plurality of agents having respective distributed arbiters to determine priority of arbitration requests for said bus and said arbiter for said first agent to compare arbitration requests from other agents to said state stored in said one or more registers to determine if said first agent wins said arbitration, but without determining which other agent wins arbitration, if said first agent does not win arbitration; and

a first circuit coupled to receive an agent identifier indicative of a second agent using winning arbitration of said bus if said first agent does not win arbitration, said agent identifier transmitted on said bus as part of a transaction from a distributed arbiter of said second agent, wherein said first circuit is configured to update said state responsive to said agent identifier.

41. (Currently Amended) The carrier medium as recited in claim 40 wherein said first circuit in said first agent is configured to update said state to indicate that said second agent is lower priority than said first agent if said second agent ~~is different from said first agent~~ wins arbitration.

42. (Currently Amended) The carrier medium as recited in claim 40 wherein said arbiter

further comprises a second circuit coupled to said one or more registers and coupled to receive ~~a plurality of request signals~~ said arbitration requests, ~~each of said plurality of request signals corresponding to a respective agent of said plurality of agents, each having its distributed arbiter included therewith, and indicative of whether or not said respective agent is arbitrating for said bus, and~~ wherein said second circuit is configured to determine if said first agent wins said arbitration responsive to said state and said ~~plurality of arbitration requests~~ signals.

43. (Currently Amended) The carrier medium as recited in claim 42 wherein said first circuit is configured to update said state to indicate that ~~each of said plurality of other agents is~~ are higher priority than said first agent responsive to said first agent winning said arbitration.

44. (Currently Amended) The carrier medium as recited in claim 42 wherein said second circuit is configured to determine if said first agent wins said arbitration ~~further responsive to said~~ using the agent identifiers to identify agents that generate arbitration requests.

45. (Currently Amended) The carrier medium as recited in claim 40 wherein said bus is a split transaction bus, and wherein said arbiter is configured to arbitrate ~~for~~ to place an address ~~portion of~~ on said bus.

46. (Canceled)

47. (Currently Amended) The carrier medium as recited in claim 40 wherein said bus is a split transaction bus, and wherein said arbiter is configured to arbitrate ~~for a~~ to place data ~~portion of~~ on said bus.

48. (Canceled)